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EXAMINER	
MICHENER, JOSHUA J	
ART UNIT	**PAPER NUMBER**
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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/711,372	Applicant(s) RICHARDSON, STEVEN D.
	Examiner JOSHUA J. MICHENER	Art Unit 3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26,37 and 38* is/are pending in the application.

4a) Of the above claim(s) *14-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,18-26,37,38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 11 – 12, filed 12/14/2007, with respect to the rejection(s) of claim(s) 1-13, 18 – 26, and 37 - 38 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Vertatschitsch et al. (US 5,294,075) and Morrison et al. (US 4,488,236).

The Examiner apologizes for any delay in prosecution.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 – 5, 10, 12, 13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 3,515,485) in view of Vertatschitsch et al. (US 5,294,075) and Morrison et al. (US 4,488,236).

2. Regarding claims 1 – 3, Frank discloses a vertical takeoff and landing aircraft comprising: an aircraft fuselage (6); a plurality of hubs mechanically (figure 1) coupled to said fuselage and rotated by at least one engine; a plurality of rotors (figure 1) mechanically coupled to said plurality of hubs and propelling and lifting said aircraft fuselage; a first detector (24, column 7, lines 5 – 19)) generating rotor signals indicative of a first rotational position (col 9, lines 21 – 25) of a first rotor of the aircraft; a second detector (24, column 7, lines 5 – 19) generating rotor signals indicative of a first rotational position of a second rotor of the aircraft;

and Frank suggests providing a controller/controls for operating the aircraft, but fails to explicitly teach the controller coupled to said detectors,

3. Vertatschitsch discloses it is known to have position sensors on the fuselage of an aircraft pointed towards the rotor blades wherein the plurality of detectors (4 or 116); and a controller (8) coupled to said plurality of detectors (col 6, lines 14 – 20) controls the flight of the aircraft (col 3, lines 20 – 21), but fails to explicitly teach that the flight controller of the helicopter controls the speed of the rotors.

4. Morrison et al. discloses it is known for helicopter flight controllers to adjust the rotor speeds to minimize fuel consumption (col 1, lines 10 – 15 and 64 – 67 and col 2, lines 1 - 7 and 29 - 34).

5. It would have been obvious for one of ordinary skill in the art to apply the technique of coupling position detectors to a flight controller as taught in Vertatschitsch, to improve the helicopter of Frank for the predictable result of enabling a flight controller to make the appropriate adjustments in response to position signals for the flight of the helicopter encompassing adjusting the speeds of the rotors to minimize fuel consumption as taught by Morrison.

6. Further, the Examiner asserts it is old and well known in the art that flight controllers and/or automatic pilot systems for helicopters controlling the flight of the helicopter, control the revolutions per minute (RPMs) of the rotors in variant flight maneuvers, modes, stability controls, fuel optimization, etc., wherein given certain flight conditions sensed by sensors the flight controller would alter the RPMs of the rotors for purposes of compensating. Thus, it would have been obvious for one of ordinary skill in the art to have a flight controller change the RPMs

of the rotors in order to control the flight of a helicopter given a variant flight condition experienced as sensed by the positional sensors, furthermore, it is known in the art that upon noticing a misalignment and/or out of track condition monitored by a rotor position sensing system, vibration of the craft is likely to occur and to compensate or prevent vibration, one would adjust the rotational speed of the rotors for example for passenger comfort.

7. Regarding claim 4, Frank, as modified, discloses the apparatus as in claim 3, wherein the detectors are coupled to said aircraft fuselage and have portions in the direction of a plurality of rotors thereby encompassing the scope of the claim.

8. Regarding claim 5, Frank, as modified, discloses the apparatus as in claim 3 wherein the plurality of detectors are coupled to said plurality of rotors and directed towards said aircraft fuselage (figure 1 and 5).

9. Regarding claim 10, Frank, as modified, discloses the apparatus as in claim 3, comprising a plurality of emitters (72, 72'), said plurality of detectors generating said rotor signals in response to emitted energy from emitters.

10. Regarding claims 12, 13 and 26, Frank, as modified, discloses the apparatus as claimed comprising a first and second emitter (70, 72') and a first and second detector generating rotational position signals from the rotors (see paragraphs 5 and 6 above regarding the discussion of controlling rotor speeds).

Claims 6 – 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank in view of Vertatschitsch et al. and Morrison et al. as applied to claims above, and further in view of Engels et al. (Us 5,205,710).

11. Regarding claims 6 – 9 and 11, Frank, as modified, discloses the apparatus as in claim 3, but fails to teach the detectors detect infrared energy or ultraviolet. However, Frank (figure 7) discloses an alternate detection system using lasers.

12. Engles et al. discloses an emitter for helicopter rotors that teaches of using infrared or ultra violent energy. It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Frank to use ultraviolet or infrared energy as an equivalent alternative energy source for lasers as a matter of design choice as taught by Engles (column 2, line 20) to provide an virtually invisible light source for stealth at night. In other words, lasers are in variant areas of the spectrum.

Claims 3, 18 – 25, and 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bass et al. (US 6,789,764) in view of Frank (US 3,515,485, Morrison et al. and Vertatschitsch et al.

13. Regarding claim 3, Bass et al. discloses a dual-flight tandem rotor wing comprising an aircraft fuselage (53); a plurality of hubs mechanically coupled to said fuselage and rotated by at least one engine (col 7, lines 10 -25); a plurality of rotors mechanically coupled to said plurality of hubs (col 7, lines 10 -25); and propelling and lifting said aircraft fuselage; a controller/(generic controls) adjusting rotational speed of a plurality of rotors (col 7, lines 10 - 25), but fails to teach of a plurality of detectors generating rotor signals indicative of positions of said plurality of rotors; and the controller coupled to and adjusting rotation speed of said plurality of rotors in response to said rotor signals. However, Frank discloses a vertical takeoff and landing aircraft comprising; a first detector (24, column 7, lines 5 – 19)) generating rotor signals indicative of a first rotational position (col 9, lines 21 – 25) of a first rotor of the aircraft;

a second detector (24, column 7, lines 5 – 19) generating rotor signals indicative of a first position of a second rotor of the aircraft; a first and second emitter (70, 72') and a first and second detector generating rotational position signals from the rotors and adjusting the defective blade (column 9, lines 10 – 20). Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Bass et al. to comprise of a plurality of detectors generating rotor signals indicative of positions of said plurality of rotors in order to monitoring and adjust defective blades as taught by Frank (column 9, lines 10 – 20).

But, Bass et al., as modified, fails to explicitly teach the controller is coupled to said detectors, capable of controlling the flight of the aircraft in response to said rotor signals.

14. Vertatschitsch discloses it is known to have position sensors on the fuselage of an aircraft pointed towards the rotor blades wherein the plurality of detectors (4 or 116); and a controller (8) coupled to said plurality of detectors (col 6, lines 14 – 20) controls the flight of the aircraft (col 3, lines 20 – 21), but fails to explicitly teach that the flight controller of the helicopter controls the speed of the rotors.

15. Morrison et al. discloses it is known for helicopter flight controllers to adjust the rotor speeds to minimize fuel consumption (col 1, lines 10 – 15, and 64 – 67 and col 2, lines 1 - 7, and 29 - 34).

16. It would have been obvious for one of ordinary skill in the art to apply the technique of coupling position detectors to a flight controller as taught in Vertatschitsch, to improve the helicopter of Frank for the predictable result of enabling a flight controller to make the appropriate adjustments in response to position signals for the flight of the helicopter

encompassing adjusting the speeds of the rotors to minimize fuel consumption as taught by Morrison.

17. Further, the Examiner asserts it is old and well known in the art that flight controllers and/or automatic pilot systems for helicopters controlling the flight of the helicopter, control the revolutions per minute (RPMs) of the rotors in variant flight maneuvers, modes, stability controls, fuel optimization, etc., wherein given certain flight conditions sensed by sensors the flight controller would alter the RPMs of the rotors for purposes of compensating. Thus, it would have been obvious for one of ordinary skill in the art to have a flight controller change the RPMs of the rotors in order to control the flight of a helicopter given a variant flight condition experienced as sensed by the positional sensors, furthermore, it is known in the art that upon noticing a misalignment and/or out of track condition monitored by a rotor position sensing system, vibration of the craft is likely to occur and to compensate or prevent vibration, one would adjust the rotational speed of the rotors for example for passenger comfort.

18. Regarding claims 18 and 19, Bass et al., as modified, discloses the apparatus as in claim 3, wherein said controller adjusts gas flow to said plurality of rotors; at least one gas control valve, said controller adjusting rotational speed of said plurality of rotors via said at least one gas control valve (column 3, line 35 – column 4, line 35),

19. Regarding claim 20, Bass et al., as modified, discloses the apparatus as in claim 3 comprising at least one air brake device (column 4, lines 35 – 40, Bass). It is noted, the Examiner is interpreting any control surface that produces drag as an airbrake and thus encompasses the scope of the claim.

20. Regarding claims 21 and 22, Bass et al., as modified, discloses the apparatus as in claim 3 comprising a drag device comprising a flap (column 4, lines 35 – 40, Bass) wherein the controller is capable of adjusting the flap.

21. Regarding claims 23 and 25, Bass et al., as modified, discloses the apparatus as in claim 3 wherein the controller switches said plurality of tandem rotor/wings between a vertical lift mode and a fixed wing mode (column 8, lines 30 – 43, Bass).

22. Regarding claim 24, Bass et al., as modified, discloses the apparatus as in claim 3 comprising a transitional lift wing (16).

23. Regarding claim 37, Bass et al. discloses a dual-flight tandem rotor wing comprising an aircraft fuselage (53); a plurality of hubs mechanically coupled to said fuselage and rotated by at least one engine (col 7, lines 10 -25); a plurality of rotors mechanically coupled to said plurality of hubs (col 7, lines 10 -25); and propelling and lifting said aircraft fuselage; a controller/(generic controls) adjusting rotational speed of a plurality of rotors (col 7, lines 10 - 25), but fails to teach of a plurality of detectors generating rotor signals indicative of positions of said plurality of rotors; and the controller coupled to and adjusting rotation speed of said plurality of rotors in response to said rotor signals. However, Frank discloses a vertical takeoff and landing aircraft comprising; a first detector (24, column 7, lines 5 – 19)) generating rotor signals indicative of a first position of a first rotor of the aircraft; a second detector (24, column 7, lines 5 – 19) generating rotor signals indicative of a first position of a second rotor of the aircraft; a first and second emitter (70, 72') and a first and second detector generating rotational position signals from the rotors and adjusting the defective blade (column 9, lines 10 – 20). Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was

made to modify Bass et al. to comprise of a plurality of detectors generating rotor signals indicative of rotational positions (col 9, lines 21 – 25) of said plurality of rotors in order to monitoring and adjust defective blades as taught by Frank (column 9, lines 10 – 20).

But, Bass et al., as modified, fails to explicitly teach the controller is coupled to said detectors, capable of controlling the flight of the aircraft in response to said rotor signals.

24. Vertatschitsch discloses it is known to have position sensors on the fuselage of an aircraft pointed towards the rotor blades wherein the plurality of detectors (4 or 116); and a controller (8) coupled to said plurality of detectors (col 6, lines 14 – 20) controls the flight of the aircraft (col 3, lines 20 – 21), but fails to explicitly teach that the flight controller of the helicopter controls the speed of the rotors.

25. Morrison et al. discloses it is known for helicopter flight controllers to adjust the rotor speeds to minimize fuel consumption (col 1, lines 10 – 15, and 64 – 67 and col 2, lines 1 - 7, and 29 - 34).

26. It would have been obvious for one of ordinary skill in the art to apply the technique of coupling position detectors to a flight controller as taught in Vertatschitsch, to improve the helicopter of Frank for the predictable result of enabling a flight controller to make the appropriate adjustments in response to position signals for the flight of the helicopter encompassing adjusting the speeds of the rotors to minimize fuel consumption as taught by Morrison.

27. Further, the Examiner asserts it is old and well known in the art that flight controllers and/or automatic pilot systems for helicopters controlling the flight of the helicopter, control the revolutions per minute (RPMs) of the rotors in variant flight maneuvers, modes, stability

controls, fuel optimization, etc., wherein given certain flight conditions sensed by sensors the flight controller would alter the RPMs of the rotors for purposes of compensating. Thus, it would have been obvious for one of ordinary skill in the art to have a flight controller change the RPMs of the rotors in order to control the flight of a helicopter given a variant flight condition experienced as sensed by the positional sensors, furthermore, it is known in the art that upon noticing a misalignment and/or out of track condition monitored by a rotor position sensing system, vibration of the craft is likely to occur and to compensate or prevent vibration, one would adjust the rotational speed of the rotors for example for passenger comfort.

28. Regarding claim 38, Bass et al., as modified, discloses a first detector vertically in-line with a first emitter, corresponding with a first tandem rotor/wing, and generating a first tandem rotor/wing signal; and a second detector vertically in-line with a second emitter, corresponding with a second tandem rotor/wing, and generating a second tandem rotor/wing signal; said controller adjusting rotational speed of said first tandem rotor/wing relative to said second tandem rotor/wing in response to a comparison between said first tandem rotor/wing signal and said second tandem rotor/wing signal (figure 5, Churchill).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA J. MICHENER whose telephone number is (571)272-1467. The examiner can normally be reached on Monday through Friday 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael R. Mansen can be reached on 571-272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Mansen/
Primary Examiner, Art Unit 3644

Joshua J Michener
Examiner
Art Unit 3644

/J. J. M./